



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/707,632

12/26/2003

SHUN-LI LIN

12398-US-PA

1631

31561

7590

01/11/2005

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE

7 FLOOR-1, NO. 100

ROOSEVELT ROAD, SECTION 2

TAIPEI, 100

TAIWAN

EXAMINER

PHAM, THANHHA S

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/707,632	Applicant(s) LIN ET AL.	
	Examiner Thanhha Pham	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-10, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) 14 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to Applicant's Response to Restriction Requirement dated 10/28/2004.

Election/Restrictions

1. Applicant's election of claims 7-10 of species IIa (embodiment of figures 1A-1E) in the reply filed on 10/28/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Newly submitted claims 14-15 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 14-15 are drawn to species IIb (embodiment of figures 2A-2B) while Applicant elects species IIa (embodiment of figures 1A-1E).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 14-15 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Oath/Declaration

3. Oath/Declaration filed on 12/06/2003 has been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

► With respect to claim 8, term "much" is a relative term which renders the claim indefinite. The term "much" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear how greater of an etching rate of the film layer is considered as much greater than the optical isolation layer. *Suggestion: delete relative term "much".*

► With respect to claim 9, "the etching process" lacks antecedent basis. It is unclear if "the etching process" of claim 9 is the equivalent of the "etching operation" of claim 8 or "the etching process" is an additional etching step or steps used only to remove the patterned photoresist layer and the anti-reflection coating.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2813

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. [US 2001/0051425].

► With respect to claim 7, Lee et al. (figs.4-8 and text paragraph [0001]-[0033]) discloses a method of fabricating a semiconductor device comprising the steps of:

providing a substrate (110, fig. 4, text paragraph [0020]-[0021]) having at least a film layer (115), an optical isolation layer (polysilicon layer 120: *Polysilicon with a thickness of 500-2000 angstroms would have ability of absorbing light in the photolithograph process to pattern the photoresist layer. Polysilicon layer 120 would prevent/reduce light from going to the ILD layer 115 in the photolithographic process. The polysilicon 120 would function as the optical isolation layer*), an antireflection coating (125) and a photoresist (130) sequentially formed thereon;

performing a photolithographic process to pattern the photoresist layer so that a portion of the anti-reflection coating is exposed (see figs. 4 & 5, text paragraph [0021]-[0022]); and

patterning the antireflection-coating (125), the optical isolation layer (120) and the film layer (115) to form an opening in the film layer (see figs. 6-7, text paragraph [0023]-[0025]).

► With respect to claim 8, as being best understood, Lee et al. (figs. 5-7 and text paragraph [0014] & text paragraph [0021] lines 8-10) discloses the step of patterning the antireflective coating, the optical isolation layer and the film layer comprises

Art Unit: 2813

performing an etching operation using the patterned photoresist as a mask in which the film layer has etching rate greater than the optical isolation layer.

► With respect to claim 9, as being best understood, Lee et al.(figs 7-8, text paragraph [0026] and [0028]) discloses wherein the patterned photoresist layer and the patterned anti-reflection coating are also removed in etching processes after performing said etching operation.

Allowable Subject Matter

6. Claim 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Recorded Prior Art fails to disclose or suggest the combination process steps of fabricating a semiconductor device as recited in the base claim 7 and intervening claim 8 including: removing the patterned photoresist layer and the anti-reflection coating, forming a material layer over the substrate covering the optical isolation layer and completely filling the opening, and performing a chemical-mechanical polishing operation using the optical isolation layer as a polishing stop layer to remove the material layer over the optical isolation layer as characterized in claim 10.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'Thanhha Pham', written over a horizontal line.

Thanhha Pham
Patent Examiner
Patent Examining Group 2800